

Schreiber, 128 F.3d 1473, 1477 (Fed. Cir. 1997); *Glaxo Inc. v. Novopharm Ltd.*, 52 F.3d 1043, 1047 (Fed. Cir. 1995). Specifically, two conditions must be met as follows: (1) all the elements of the claim must be properly construed, and (2) all the elements of the claim, as properly construed, must be disclosed in the prior art reference either explicitly or inherently. *Elmer v. ICC Fabricating, Inc.*, 67 F.3d 1571, 1574 (Fed. Cir. 1995); *Schreiber*, 128 F.3d at 1477; *Glaxo*, 52 F.3d at 1047.

It is claimed in claim 4 of the present invention that either one of an energy density of the laser beams to be guided to the top surface of the object and an energy density of the laser beams to be guided to the back surface of the object is attenuated. As described in the specification, a laser light is divided into a first laser light and a second laser light. The first laser light is attenuated. Alternatively, the second laser light is attenuated. The first laser light is guided onto a top surface of an object. The second laser light is guided onto a back surface of the object. It is not suggested in the reference to Baumgart and the reference to Xuan that after a laser light is divided, the divided laser light is attenuated. Please note, this feature of the present invention is claimed in claim 4 and in new claim 30.

All of the elements of the claims are not disclosed by the prior art either explicitly or inherently; therefore, the prior art does not anticipate claim 4, and the rejections under §§ 102(b) and (e) should be withdrawn.

Claims 4 and 5 are Patentable over Osborne and Maisenbacher;
The Examiner has Not Made a Prima Facie Case of Obviousness

Claims 4 and 5 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Osborne, U.S. Patent No. 4,069,080 (Osborne) in view of Maisenbacher, U.S. Patent No. 4,925,273 (Maisenbacher). The Applicants respectfully traverse the Examiner's rejection because the Examiner has not made a *prima facie* case of obviousness.

It should be noted that three criteria must be met to establish a *prima facie* case of obviousness. *M.P.E.P.* § 2143. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings to achieve the claimed invention. *Id.* Second, there must be a reasonable expectation of success. *In re Rhinehart*, 531 F.2d 1048, 189

USPQ 143 (CCPA 1976). Third, the prior art must teach or suggest all the claim limitations. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974).

Even assuming proper motivation and a reasonable expectation of success, the prior art does not teach or suggest all the elements of the claims, either explicitly or inherently. It is not suggested in either Osborne or Maisenbacher, alone or in combination, that after a laser light is divided, the divided laser light is attenuated.

The Applicants further contend that even assuming, *arguendo*, that the combination of Osborne and Maisenbacher is proper, there is a lack of suggestion as to why a skilled artisan would use the proposed modifications to achieve the unobvious advantages first recognized by the Applicants. The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680 (Fed. Cir. 1990).

For the reasons stated above, the Examiner has not set forth a *prima facie* case of obviousness; therefore, the Applicants respectfully request that the Examiner withdraw the § 103 rejection.

Claims 6-11, As Amended, are Patentable over Noguchi and Adachi

Claims 6-11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Noguchi, U.S. Patent No. 5,767,003 (Noguchi) in view of Adachi et al., U.S. Patent No. 6,171,890 (Adachi).

Independent claims 6 and 9 have been amended in accordance with the specification to recite that a second laser light is reflected at a reflector disposed on a back surface side of the object, and the reflected second laser light is irradiated to a back surface of the object. The prior art does not teach or suggest all the elements of the claims, as amended, either explicitly or inherently.

For the reasons stated above, the Examiner has not set forth a *prima facie* case of obviousness; therefore, the Applicants respectfully request that the Examiner withdraw the § 103 rejection.

**Claims 21-29, As Amended, are Patentable over Noguchi, Adachi, Yamazaki,
and Shepherd, Baumgart, or Osborne**

Claims 21-29 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Noguchi, Adachi, Yamazaki et al., U.S. Patent No. 5,854,803 (Yamazaki) and alternatively Shepherd et al., U.S. Patent No. 4,020,319 (Shepherd), Baumgart or Osborne.

Independent claims 21, 24 and 27 have been amended in accordance with the specification to recite that a laser light is divided into a first laser light and a second laser light, and the first laser light is attenuated by an attenuation filter, and a top surface of an object is irradiated with the attenuated first laser light.

Although the first laser light is attenuated in claims 21, 24 and 27, the second laser light, to irradiate a back surface of the object, may be attenuated alternatively. Please note, new claims 31-33 recite that the second laser light is attenuated.

The prior art does not teach or suggest all the elements of the claims, as amended, either explicitly or inherently.

For the reasons stated above, the Examiner has not set forth a *prima facie* case of obviousness; therefore, the Applicants respectfully request that the Examiner withdraw the § 103 rejection.

Allowable Subject Matter

The Examiner is thanked for indicating the allowability of claims 1-3 and 12-20.

New Claims 30-33

As noted above, the allowable features of independent claims 4, 21, 24 and 27 are recited in new claims 30-33. For the reasons stated above, new claims 30-33 are believed to be in condition for allowance.

Conclusion

Having responded to all rejections set forth in the outstanding non-final Office Action, it is submitted that the claims are now in condition for allowance. An early and favorable Notice of Allowance is respectfully solicited. In the event that the Examiner is of the opinion that a brief telephone or personal interview will facilitate allowance of one or more of the above claims, the Examiner is courteously requested to contact Applicants' undersigned representative.

Respectfully submitted,



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MARKED-UP VERSION OF THE AMENDED CLAIMS

4. (Amended) A laser apparatus, comprising:
a laser source for emitting a laser light; [and]
a half mirror for dividing the laser light into a first laser light and a second laser light;
an optical system for guiding [laser beams emitted from the laser source] the first laser light
and the second laser light onto a top surface and a back surface of an object to be treated,
respectively,

wherein the optical system includes a filter for attenuating [either one of an energy density
of the laser beams to be guided to the top surface of the object and an energy density of the laser
beams to be guided to the back surface of the object] the first laser light.

6. (Amended) A method [of laser annealing] for forming a semiconductor device
comprising:

irradiating a first laser light to a top surface of an object; [and]
reflecting a second laser light at a reflector disposed on a back surface side of the object; and
irradiating [a] the reflected second laser light to a back surface of the object,

wherein an effective energy intensity I_0 of the first laser light to be applied onto the top
surface is set at a level different from an effective energy intensity I_0' of the second laser light to be
applied onto the back surface.

9. (Amended) A method [of laser annealing] for forming a semiconductor device
comprising:

irradiating a first laser light to a top surface of an object; [and]
reflecting a second laser light at a reflector disposed on a back surface side of the object; and
irradiating [a] the reflected second laser light to a back surface of the object,

wherein an effective energy intensity I_0 of the first laser light to be applied onto the top
surface and an effective energy intensity I_0' of the second laser light to be applied onto the back
surface satisfy the relationship of $0 < I_0'/I_0 < 1$ or $1 < I_0'/I_0$.

21. (Amended) A method [of laser annealing] for forming a semiconductor device, comprising the steps of:

generating a laser light from a laser source used as an oscillating source;
dividing the laser light into a first laser light and a second laser light through an optical system;
attenuating the first laser light by an attenuation filter;
irradiating a top surface of an object with the attenuated first laser light; and
irradiating a back surface of the object with the second laser light.

24. (Amended) A method [of laser annealing] for forming a semiconductor device, comprising the steps of:

generating a laser light from a laser source used as an oscillating source;
dividing the laser light into a first laser light and a second laser light through an optical system;
attenuating the first laser light by an attenuation filter;
irradiating a top surface of an object with the attenuated first laser light; and
irradiating a back surface of the object with the second laser light,
wherein an effective energy intensity I_0 of the first laser light to be applied onto the top surface is set at a level different from an effective energy intensity I_0' of the second laser light to be applied onto the back surface.

27. (Amended) A method [of laser annealing] for forming a semiconductor device, comprising the steps of:

generating a laser light from a laser source used as an oscillating source; and
dividing the laser light into a first laser light and a second laser light through an optical system;
attenuating the first laser light by an attenuation filter;
irradiating a top surface of an object with the attenuated first laser light; and
irradiating a back surface of the object with the second laser light,

wherein an effective energy intensity I_0 of the first laser light to be applied onto the top surface and an effective energy intensity I_0' of the second laser light to be applied onto the back surface satisfy the relationship of $0 < I_0'/I_0 < 1$ or $1 < I_0'/I_0$.